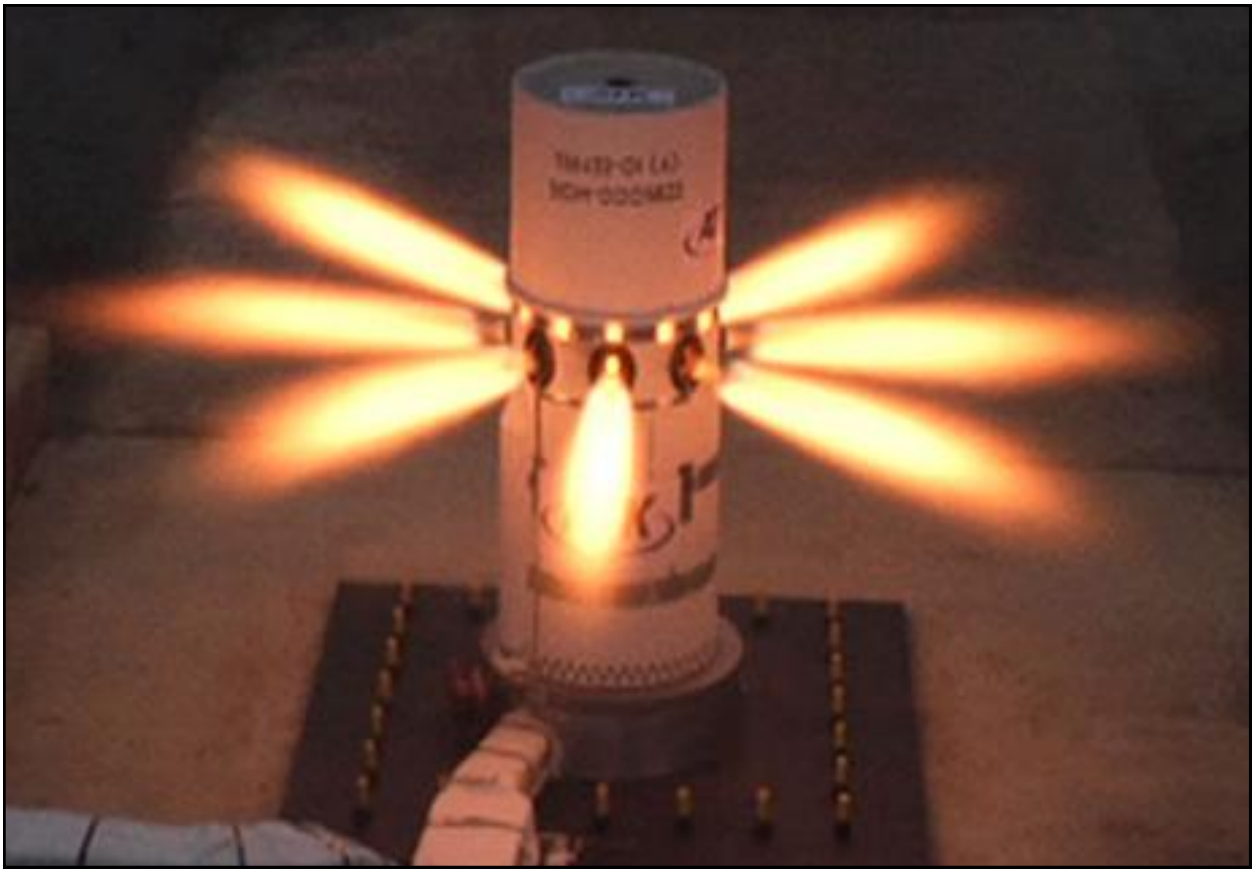
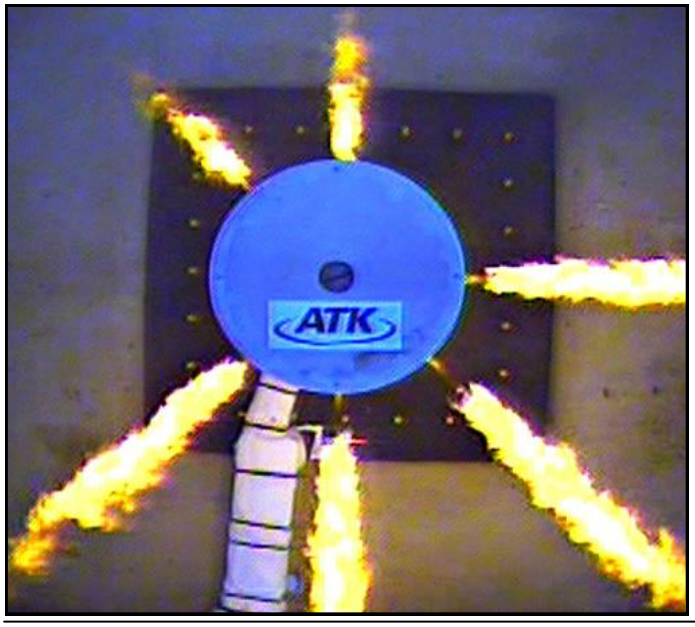
ORION
CREW EXPLORATION VEHICLE

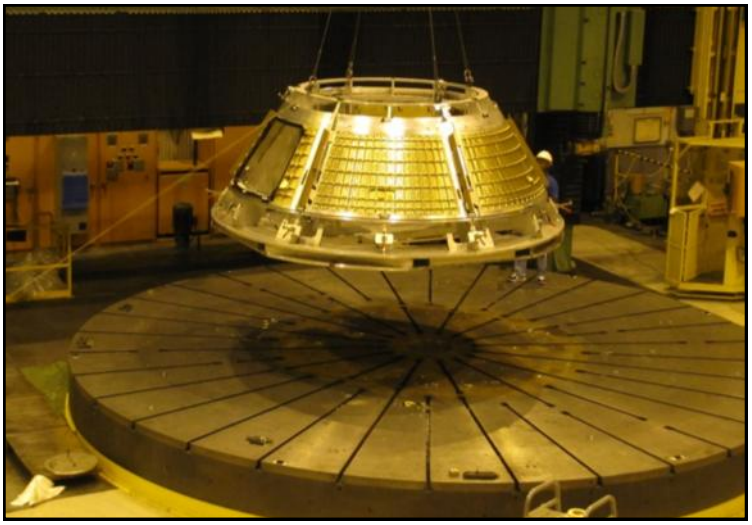
WEEKLY ACCOMPLISHMENTS

12.18.09





NASA, Alliant Techsystems (ATK) and Lockheed Martin performed a successful ground test of a full-scale attitude control motor for the launch abort system of the Orion crew exploration vehicle at ATK's facility in Elkton, MD. Together, the eight-proportional valves can exert up to 7,000 pounds of steering force to the vehicle in any direction upon command from the crew module. Early indications are that the test was successful with no anomalies and the team is now analyzing detailed results. This was the sixth in a series of ground tests of Orion's attitude control motor system, validating that the thruster system performs as designed.

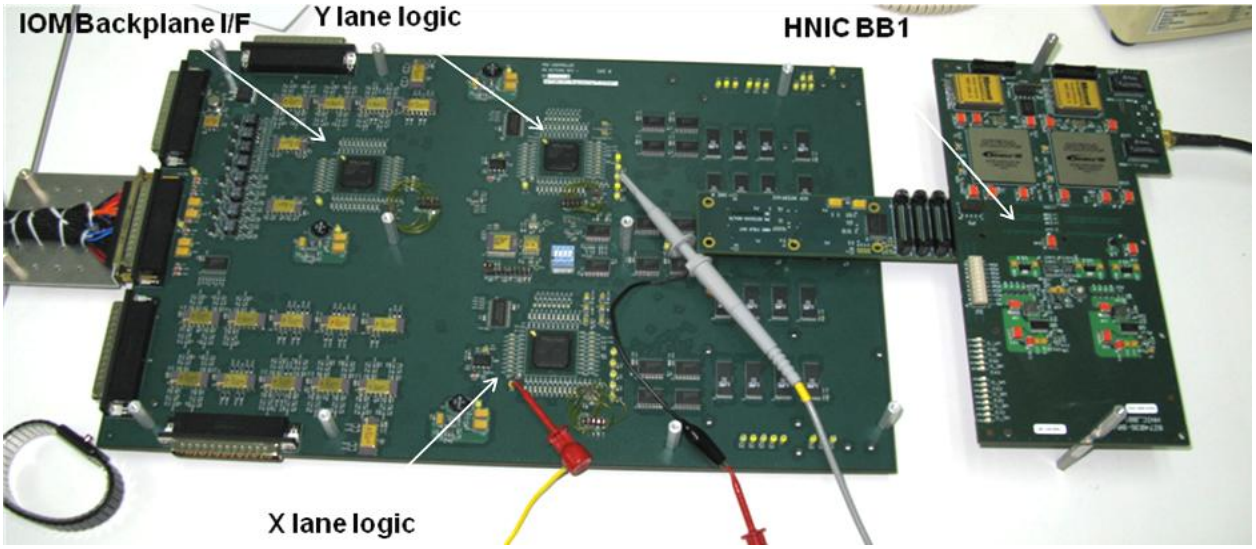


Trim work began on the Cone and Barrel Ground Test Articles (GTA) at the Michoud Assembly Facility in New Orleans, LA. Shown left is the cone being lifted off of the "Niles" machine, which is used to perform the trim on the lower surface of the cone. Trimming is necessary due to the extra metal used to hold each piece in place during the friction weld process. Since the cone and barrel will be welded together, the trim is required to get the pieces to the correct combined height.

Work continued in the Final Integration and Test Facility at White Sands Missile Range as part of Pad Abort-1 preparations with the completion of the Jettison Motor to Canard mate (shown left and in banner) and the Safe and Arm installation.

The Crew Exploration Vehicle Parachute Assembly System (CPAS) team continues to meet PA1 Forward Bay Installation milestones. The CPAS main chutes and small and large stowage bags were installed (shown right). The team completed all of the Main Chute rigging and the CPAS Mortar installation.

Shown left is the Bifilar swing test of the Post-Landing Orion Recovery Test (PORT) mockup test article at the Neutral Buoyancy Laboratory (NBL) in Houston. The test involves suspending the PORT mockup off the ground to measure how the vehicle oscillates to the center of gravity and moments of inertia of the test article.



The Orion Avionics Team has delivered the first prototype Power and Data Unit (PDU) controller card seen above being tested with a network interface card connected to a single lane processor, network switch, and display unit at Honeywell in Phoenix, AZ. The PDU is the core control element of the Orion distributed electrical power system and will undergo development testing throughout 2010.